

REMARKS

The official action of 17 August 2009 has been carefully considered and reconsideration of the application as amended is respectfully requested.

The indication that claims 1-11 are allowed and that claims 26-29 would be allowable if rewritten to overcome the rejection under 35 USC 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims, has been noted with appreciation. Since there is no rejection under 35 USC 112, second paragraph appearing in the official action, and since the Examiner has acknowledged that the prior art fails to disclose a method for purifying air for fuel cells as claimed characterized in that the adsorbent used in the claimed adsorber comprises hydrated oxides of transition metals (as in claims 26-29), it is respectfully believed that the portion of paragraph 3 of the official action which makes reference to a rejection under Section 112, second paragraph is in error. It is also respectfully believed that the failure to include claims 32-33 in the indication of allowable subject matter is also in error since these claims depend from an allowed claim (claim 1) and have not otherwise been rejected. If the present response is not considered to place the application into allowable form, Applicants respectfully request correction of these apparent errors in a next action, if any.

Claims 22-33 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Isenberg in view of Goldstein et al. Claim 22 has now been amended to include the recitations which the Examiner acknowledged are not disclosed in the prior art,

namely the use of an adsorbent of carbon dioxide comprising a hydrated oxide of a transition metal which is regenerable at a temperature of 60-120°C by air spent in the fuel cell.

Applicant respectfully submits that this amendment to the claims places claim 22 and the claims depending therefrom into allowable form in accordance with the Examiner's comments and for the reasons set forth next.

Isenberg discloses a hydrocarbon reformer for a high-temperature hard-oxide fuel cell. Gases exiting the fuel cell are used in the reformer to maintain its operating temperature and not to regenerate the adsorbent in the adsorbers that are absent in the present patent.

Goldstein deals with purification of air against CO₂ going to the air-metal or fuel cells. A solid or liquid 1a-group metal hydroxide is used as an adsorbent. The adsorbent is regenerated by decomposing carbonates at a temperature of 900 to 1400°C followed by hydrolyzing the resulting metal oxide by water. This regeneration method is complicated and results in a large energy consumption. It is associated with the need to remove carbonates from the adsorber, to place them into a reactor for decomposition at a high temperature (that requires a large amount of energy), and to charge the adsorber with the adsorbent.

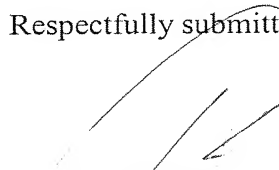
In contrast, the claimed invention uses hydrated transition metal oxides as an adsorbent, and the adsorbent is regenerated by an air flow going out of the fuel cell, having a relative humidity of 15 to 85 % and a temperature of 60 to 120°C. It should be noted that air going out of the fuel cells does not comprise CO₂. The adsorbent is regenerated directly in the

adsorber. The claimed regeneration method is characterized by simplicity and low energy consumption.

The cited references do not show or suggest the features of the invention defined by claim 22 as amended whereby Applicants respectfully submit that the references cannot be used to set forth even a *prima facie* case of obviousness for the invention as now claimed. Accordingly, Applicants respectfully submit that the prior art rejection of record has been overcome and should be withdrawn.

In view of the above, Applicants respectfully submit that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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